

Rec'd PCT/PTO 08 DEC 2004

09/673133

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.

Application Serial Number: 09/673,133Source: PG/10Date Processed by STIC: 12/8/04***ENTERED***

**CRF Errors Edited by the STIC Systems
Branch**

Serial Number:

09/673,133

CRF Edit Date:

12/8/04

Edited by:

AV

___ Realigned nucleic acid/amino acid numbers/text in cases where the sequence text "wrapped" to the next line

___ Corrected the SEQ ID NO. Sequence numbers edited were:

___ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

___ Deleted: ___ invalid beginning/end-of-file text ; ___ page numbers

___ Inserted mandatory headings/numeric identifiers, specifically:

___ Moved responses to same line as heading/numeric identifier, specifically:

Other:

Sequence 7 - inserted hard return before amino acid
385

Revised 09/09/2003



PCT

RAW SEQUENCE LISTING

DATE: 12/08/2004

PATENT APPLICATION: US/09/673,133

TIME: 10:42:15

Input Set : A:\PTO.KD.txt

Output Set: N:\CRF4\12082004\I673133.raw

3 <110> APPLICANT: Myers, Lisa E
4 Schryvers, Anthony B
5 Harkness, Robin E
6 Loosmore, Sheena M
7 Du, Run-Pan
8 Yang, Yan-Ping
9 Klein, Michel H
11 <120> TITLE OF INVENTION: TRANSFERRIN RECEPTOR GENES OF MORAXELLA
13 <130> FILE REFERENCE: 1038-1102 MIS
15 <140> CURRENT APPLICATION NUMBER: 09/673,133
C--> 16 <141> CURRENT FILING DATE: 2000-10-11
18 <150> PRIOR APPLICATION NUMBER: 09/059,584
19 <151> PRIOR FILING DATE: 1998-04-14
21 <150> PRIOR APPLICATION NUMBER: PCT/CA99/00307
22 <151> PRIOR FILING DATE: 1999-04-12
24 <160> NUMBER OF SEQ ID NOS: 22
26 <170> SOFTWARE: PatentIn Ver. 2.1
28 <210> SEQ ID NO: 1
29 <211> LENGTH: 2121
30 <212> TYPE: DNA
31 <213> ORGANISM: Moraxella catarrhalis
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36 tcaggttaata ctggcaacac tggtaatgct ggcgttactg ataatacagc caatgcaggt 180
37 aatacaggcg gtacaaactc tggtagagcg agtgccaaca caccagaacc aaaatataaa 240
38 gatgtgccaa ccgatgaaaa taaaaaagat gaagtgtcag gcattcaaga acctgccatg 300
39 gggttatggca tggcttttgag taaaatgaat ctacacaaac aacaagacac gccattagat 360
40 gaaaaagata tcattacctt agacggtaaa aaacaagttg caaaagggtga aaaatcgcca 420
41 ttgccatttt cgttggatgt agaaaataaa ttgcttgatg gctatatagc aaaaatgaat 480
42 gaagcgggata aaaatgccat tggtagacaga attaagaaaag ataataaaga caagtcatta 540
43 tctaaagcag agcttgccaa acaaatcaaa gaagatgtgc gtaaaagcca tgagtttcag 600
44 caagtattat catcactgaa aaacaaaatt tttnattcaa atgatggaac aaccaaagca 660
45 accacacgag atttacaata tgttgattat gggtactact tggatgaatga tggcaattat 720
46 ctaaccgtca aaacagacga actttggaat ttaggccctg tgggcgggtgt gttttataat 780
47 ggcacaacga ccgccaaaga gctaccacaa caagatgcgg tcaaataaaa aggacatttg 840
48 gactttatga ccgatgttgc caaacaaaga aaccgattta gcgaagtga agaaaacctt 900
49 caagcaggtc ggtattatgg agcatcttca aaagatgaat acaaccgctt attaatgat 960
50 gagaaaaaca aaccagagcg ttataacggg gaatatggtc atagcagtga gtttactgtt 1020
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53 cgtggcagtg ccaccgcaag cgataaagca gaagcaagca aaaccaaaca cccctttacc 1200
54 agcgatgcca aaaaatagcct agaaggcggt ttttatggac caaacgccga ggagctggca 1260

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Input Set : A:\PTO.KD.txt

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56 aaagctgggg aaaaaaccga agccatctta gatgcctatg cacttggggac atttaacaaa 1380
57 aataacgcaa ccacattcac cccatttacc aaaaaacaac tggataactt tggcaatgcc 1440
58 aaaaagtggg tcttgggttc taccgtcatt gatttgggtgc ctaccggtgt caccaaaagt 1500
59 gtcaatgaat tcacaaaaaa caagccagat tctgccacaa acaaagcggg cgagactttg 1560
60 atggtgaatg ataaagttag cgtcaaaaac tatggctatg gcagaaactt tgaataccta 1620
61 aaatttgggt agctcagtggt cggcacaagc aacagcgtcl ttttacaagg cgaacgcacc 1680
62 gctaccacag gcgagaaaagc cgtaccaacc aaaggacacg ccaaatattt ggggaactgg 1740
63 gtaggataca tcacaggaaa ggactcatca aaaagcttta atgaggccca agatgttgc 1800
64 gattttgaca ttgactttga gaaaaaatca gttaaaggca aactgaccac caaagaccgc 1860
65 caagaccctg tatttaacat cacaggtgac atcgcaggca atggctggac aggcaaagcc 1920
66 agcaccacca aagcggacgc agggggctac aagatagatt ctacagctac aggcaaatcc 1980
67 atcgtcatca aagatgccga ggttacaggg ggcttttatg gtccaaatgc aaacgagatg 2040
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72 <210> SEQ ID NO: 2.

73 <211> LENGTH: 706

74 <212> TYPE: PRT

75 <213> ORGANISM: Moraxella catarrhalis

77 <400> SEQUENCE: 2

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82           20           25           30
84 Thr Pro Ile Pro Asn Ala Ser Gly Ser Gly Asn Thr Gly Asn Thr Gly
85           35           40           45
87 Asn Ala Gly Gly Thr Asp Asn Thr Ala Asn Ala Gly Asn Thr Gly Gly
88           50           55           60
90 Thr Asn Ser Gly Thr Gly Ser Ala Asn Thr Pro Glu Pro Lys Tyr Lys
91           65           70           75           80
93 Asp Val Pro Thr Asp Glu Asn Lys Lys Asp Glu Val Ser Gly Ile Gln
94           85           90           95
96 Glu Pro Ala Met Gly Tyr Gly Met Ala Leu Ser Lys Met Asn Leu His
97           100          105          110
99 Lys Gln Gln Asp Thr Pro Leu Asp Glu Lys Asp Ile Ile Thr Leu Asp
100          115          120          125
102 Gly Lys Lys Gln Val Ala Lys Gly Glu Lys Ser Pro Leu Pro Phe Ser
103          130          135          140
105 Leu Asp Val Glu Asn Lys Leu Leu Asp Gly Tyr Ile Ala Lys Met Asn
106          145          150          155          160
108 Glu Ala Asp Lys Asn Ala Ile Gly Asp Arg Ile Lys Lys Asp Asn Lys
109          165          170          175
111 Asp Lys Ser Leu Ser Lys Ala Glu Leu Ala Lys Gln Ile Lys Glu Asp
112          180          185          190
114 Val Arg Lys Ser His Glu Phe Gln Val Leu Ser Ser Leu Lys Asn
115          195          200          205
117 Lys Ile Phe His Ser Asn Asp Gly Thr Thr Lys Ala Thr Thr Arg Asp
118          210          215          220
120 Leu Gln Tyr Val Asp Tyr Gly Tyr Tyr Leu Val Asn Asp Gly Asn Tyr
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121	225					230				235			240
123	Leu	Thr	Val	Lys	Thr	Asp	Glu	Leu	Trp	Asn	Leu	Gly	Gly
124					245					250			255
126	Val	Phe	Tyr	Asn	Gly	Thr	Thr	Thr	Ala	Lys	Glu	Leu	Pro
127				260					265				270
129	Ala	Val	Lys	Tyr	Lys	Gly	His	Trp	Asp	Phe	Met	Thr	Asp
130			275					280				285	
132	Gln	Arg	Asn	Arg	Phe	Ser	Glu	Val	Lys	Glu	Asn	Leu	Gln
133		290					295				300		
135	Tyr	Tyr	Gly	Ala	Ser	Ser	Lys	Asp	Glu	Tyr	Asn	Arg	Leu
136	305					310				315			
138	Glu	Lys	Asn	Lys	Pro	Glu	Arg	Tyr	Asn	Gly	Glu	Tyr	Gly
139				325						330			335
141	Glu	Phe	Thr	Val	Asn	Phe	Lys	Asp	Lys	Lys	Leu	Thr	Gly
142			340						345			350	
144	Ser	Asn	Leu	Gln	Asp	Ser	Arg	Lys	Gly	Asn	Val	Thr	Lys
145		355						360				365	
147	Tyr	Asp	Ile	Asp	Ala	Asn	Ile	Tyr	Gly	Asn	Arg	Phe	Arg
148		370					375					380	
150	Thr	Ala	Ser	Asp	Lys	Ala	Glu	Ala	Ser	Lys	Thr	Lys	His
151	385					390				395			
153	Ser	Asp	Ala	Lys	Asn	Ser	Leu	Glu	Gly	Gly	Phe	Tyr	Gly
154				405					410				415
156	Glu	Glu	Leu	Ala	Gly	Lys	Phe	Leu	Thr	Asn	Asp	Asn	Lys
157			420						425				430
159	Val	Phe	Gly	Ala	Lys	Arg	Glu	Ser	Lys	Ala	Gly	Glu	Lys
160		435						440				445	
162	Ile	Leu	Asp	Ala	Tyr	Ala	Leu	Gly	Thr	Phe	Asn	Lys	Asn
163		450					455				460		
165	Thr	Phe	Thr	Pro	Phe	Thr	Lys	Lys	Gln	Leu	Asp	Asn	Phe
166	465					470				475			480
168	Lys	Lys	Leu	Val	Leu	Gly	Ser	Thr	Val	Ile	Asp	Leu	Val
169				485					490				495
171	Val	Thr	Lys	Asp	Val	Asn	Glu	Phe	Thr	Lys	Asn	Lys	Pro
172			500						505				510
174	Thr	Asn	Lys	Ala	Gly	Glu	Thr	Leu	Met	Val	Asn	Asp	Lys
175		515						520				525	
177	Lys	Thr	Tyr	Gly	Tyr	Gly	Arg	Asn	Phe	Glu	Tyr	Leu	Lys
178		530				535					540		
180	Leu	Ser	Val	Gly	Thr	Ser	Asn	Ser	Val	Phe	Leu	Gln	Gly
181	545					550					555		
183	Ala	Thr	Thr	Gly	Glu	Lys	Ala	Val	Pro	Thr	Lys	Gly	Thr
184				565					570				575
186	Leu	Gly	Asn	Trp	Val	Gly	Tyr	Ile	Thr	Gly	Lys	Asp	Ser
187			580						585			590	
189	Phe	Asn	Glu	Ala	Gln	Asp	Val	Ala	Asp	Phe	Asp	Ile	Asp
190		595						600				605	
192	Lys	Ser	Val	Lys	Gly	Lys	Leu	Thr	Thr	Lys	Asp	Arg	Gln
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195 Phe Asn Ile Thr Gly Asp Ile Ala Gly Asn Gly Trp Thr Gly Lys Ala
196 625 630 635 640
198 Ser Thr Thr Lys Ala Asp Ala Gly Gly Tyr Lys Ile Asp Ser Ser Ser
199 645 650 655
201 Thr Gly Lys Ser Ile Val Ile Lys Asp Ala Glu Val Thr Gly Gly Phe
202 660 665 670
204 Tyr Gly Pro Asn Ala Asn Glu Met Gly Gly Ser Phe Thr His Asn Thr
205 675 680 685
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208 690 695 700
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215 <211> LENGTH: 2139
216 <212> TYPE: DNA
217 <213> ORGANISM: Moraxella catarrhalis
219 <400> SEQUENCE: 3
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222 gcaggtaatg ctggttagcgg tactggcggt gcaggtagca ctgataatgc agccaatgca 180
223 ggcagtacag gcggtgcaag ctctggtaca ggcagtgccg gcaacaaaaa accaaaatat 240
224 caagatgtgc caaccgataa aaataaaaaa gatgaagtgt caggcattca agaacctgcc 300
225 atgggttatg gcgtggaatt aaagcttctgt aactgggatac cacaagaaca ggaagaacat 360
226 gccaaaaatca atacaaatga tgttgtaaaa cttgaaggty acttgaagca taatccattt 420
227 gacaaactcta tttggcaaaa catcaaaaat agcaaagaag tacaaactgt ttacaaccaa 480
228 gagaagcaaa acattgaaaa tcaaatcaaa aaagaaaata aagaacttga taaaacggca 540
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231 aagtatgtgc gttctgggta ttttatcgc tcaggttatt ctaatatcga cattcaaaag 720
232 aaaatagcta aaactgggtt tgatgggtgct ttattttata aaggtagaca aactgctaaa 780
233 caattgacct tatctgaggt taagtataaa ggcacttggg attttatgac cgatgccaaa 840
234 aaaggacaat catttagcag ctttgaaaga cgagctgggt atcgctatag tgcaatgtct 900
235 tcccatgagt acccatcttt attaaactgat gataaaaaa aaccagataa ttataacgat 960
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238 atcaatgccc gtatccacgg taaccgcttc cgtggcagtg ccaccgcaat caataaagat 1140
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251 gcttttgata ttactgctac aattgatggc aatggtttta gtggtaaagc caatacacca 1920

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253 gtgaaagatg ctatagttat aggtggcttt tatgggtccac aagctaata ga actgggtggc 2040
254 tcatttacct acaagagcaa tgatgctgga aatcaagaca aagacagtag tgcattctgtg 2100
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259 <211> LENGTH: 712
260 <212> TYPE: PRT
261 <213> ORGANISM: Moraxella catarrhalis
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271 35 40 45
273 Gly Gly Ala Gly Ser Thr Asp Asn Ala Ala Asn Ala Gly Ser Thr Gly
274 50 55 60
276 Gly Ala Ser Ser Gly Thr Gly Ser Ala Ser Thr Gln Lys Pro Lys Tyr
277 65 70 75 80
279 Gln Asp Val Pro Thr Asp Lys Asn Lys Lys Asp Glu Val Ser Gly Ile
280 85 90 95
282 Gln Glu Pro Ala Met Gly Tyr Gly Val Glu Leu Lys Leu Arg Asn Trp
283 100 105 110
285 Ile Pro Gln Glu Gln Glu His Ala Lys Ile Asn Thr Asn Asp Val
286 115 120 125
288 Val Lys Leu Glu Gly Asp Leu Lys His Asn Pro Phe Asp Asn Ser Ile
289 130 135 140
291 Trp Gln Asn Ile Lys Asn Ser Lys Glu Val Gln Thr Val Tyr Asn Gln
292 145 150 155 160
294 Glu Lys Gln Asn Ile Glu Asn Gln Ile Lys Lys Glu Asn Lys Glu Leu
295 165 170 175
297 Asp Lys Thr Ala Leu Lys Ala Leu Ile Glu Lys Val Leu Asp Asp Tyr
298 180 185 190
300 Leu Thr Ser Leu Ala Lys Pro Ile Tyr Glu Lys Asn Ile Asn Asp Ser
301 195 200 205
303 His Asp Lys Gln Asn Lys Ala Arg Thr Arg Asp Leu Lys Tyr Val Arg
304 210 215 220
306 Ser Gly Tyr Ile Tyr Arg Ser Gly Tyr Ser Asn Ile Asp Ile Gln Lys
307 225 230 235 240
309 Lys Ile Ala Lys Thr Gly Phe Asp Gly Ala Leu Phe Tyr Lys Gly Thr
310 245 250 255
312 Gln Thr Ala Lys Gln Leu Pro Val Ser Glu Val Lys Tyr Lys Gly Thr
313 260 265 270
315 Trp Asp Phe Met Thr Asp Ala Lys Lys Gly Gln Ser Phe Ser Ser Phe
316 275 280 285
318 Glu Arg Arg Ala Gly Asp Arg Tyr Ser Ala Met Ser Ser His Glu Tyr
319 290 295 300
321 Pro Ser Leu Leu Thr Asp Asp Lys Asn Lys Pro Asp Asn Tyr Asn Asp
322 305 310 315 320
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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/673,133DATE: 12/08/2004
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Input Set : A:\PTO.KD.txt

Output Set : N:\CRF4\12082004\1673133.raw

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The rules require that a line not exceed 72 characters in length. This includes spaces.

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Seq#:10; Line(s) 1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102
Seq#:10; Line(s) 1103,1104,1105,1106,1107,1108,1109,1110,1111,1112,1113
Seq#:10; Line(s) 1114,1115,1116,1117,1118,1119,1120,1121,1122,1123,1124
Seq#:10; Line(s) 1125,1126,1127,1128,1129,1130,1131,1132,1133,1134,1135
Seq#:10; Line(s) 1136,1137,1138,1139,1140,1141,1142,1143,1144,1145,1146
Seq#:10; Line(s) 1147,1148,1149,1150,1151,1152

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/673,133

DATE: 12/08/2004

TIME: 10:42:16

Input Set : A:\PTO.KD.txt

Output Set: N:\CRF4\12082004\I673133.raw

L:16 M:271 C: Current Filing Date differs, Replaced Current Filing Date